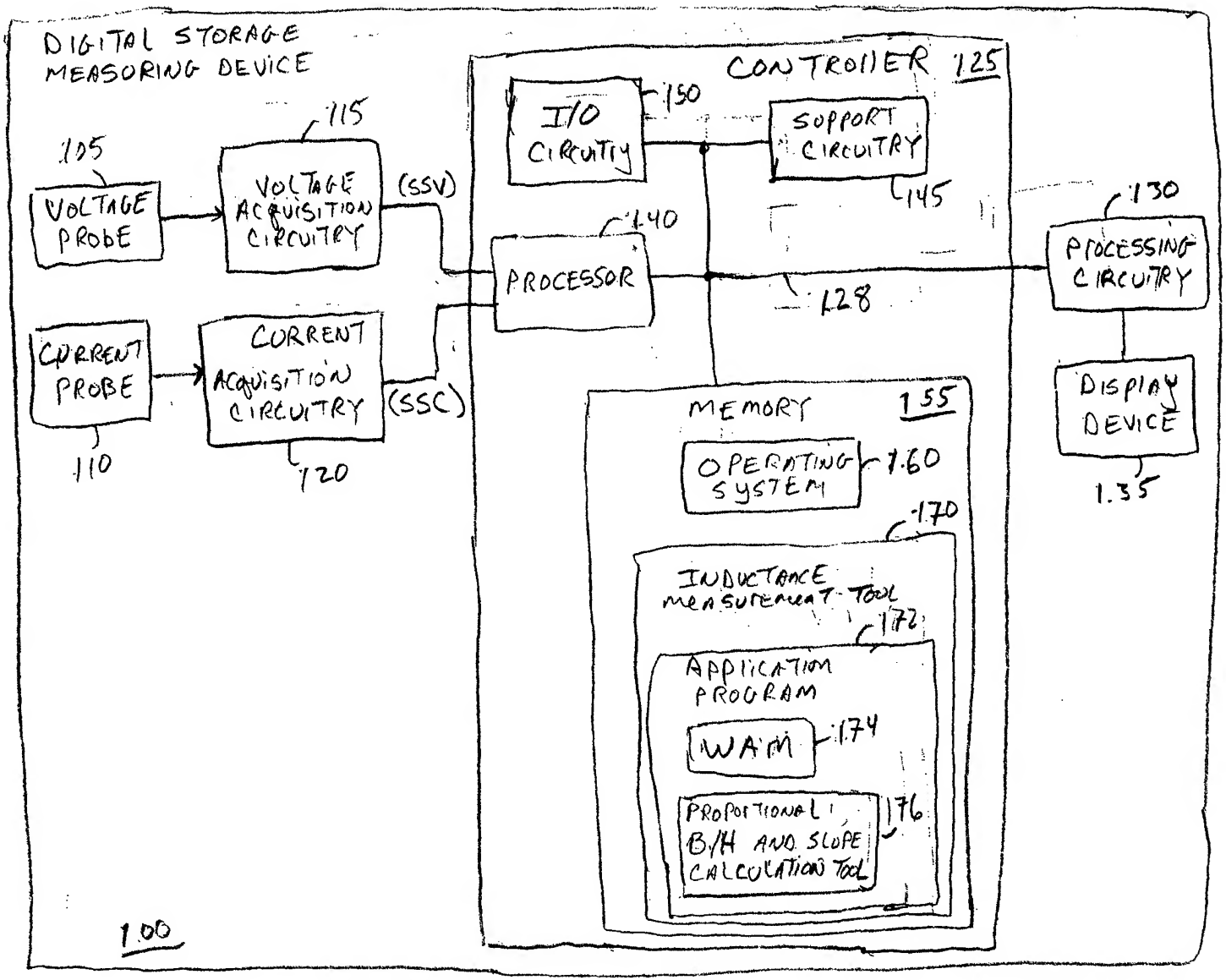

DIGITAL STORAGE MEASORING DEVICE
CONTROLLER 125
I/O CIRCUITY
150
SUPPORT CIRCUITRY
145
130
PROCESSING CIRCUITRY
140
PROCESSOR
128
105
VOLTAGE PROBE
115
VOLTAGE ACQUISITION CIRCUITRY
(SSV)
CURRENT PROBE
110
CURRENT ACQUISITION CIRCUITRY
120
(SSC)
MEMORY
155
OPERATING SYSTEM
160
170
INDUCTANCE MEASUREMENT TOOL
172
APPLICATION PROGRAM
WAM
174
PROPORTIONAL B/H AND SLOPE CALCULATION TOOL
176
DISPLAY DEVICE
135
100

FIG. 1

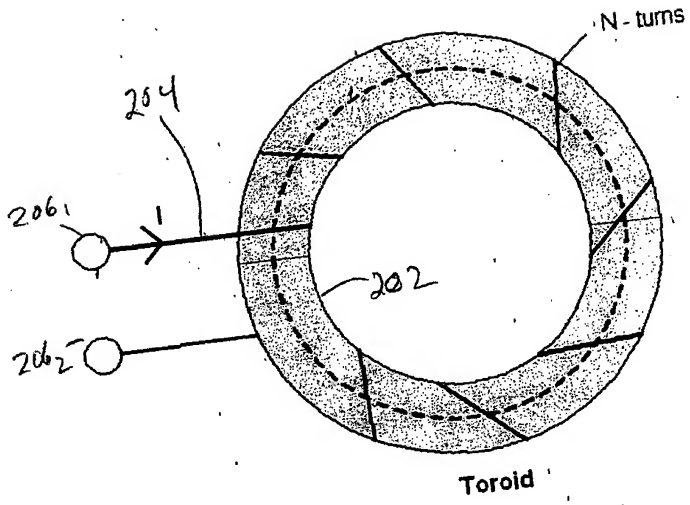
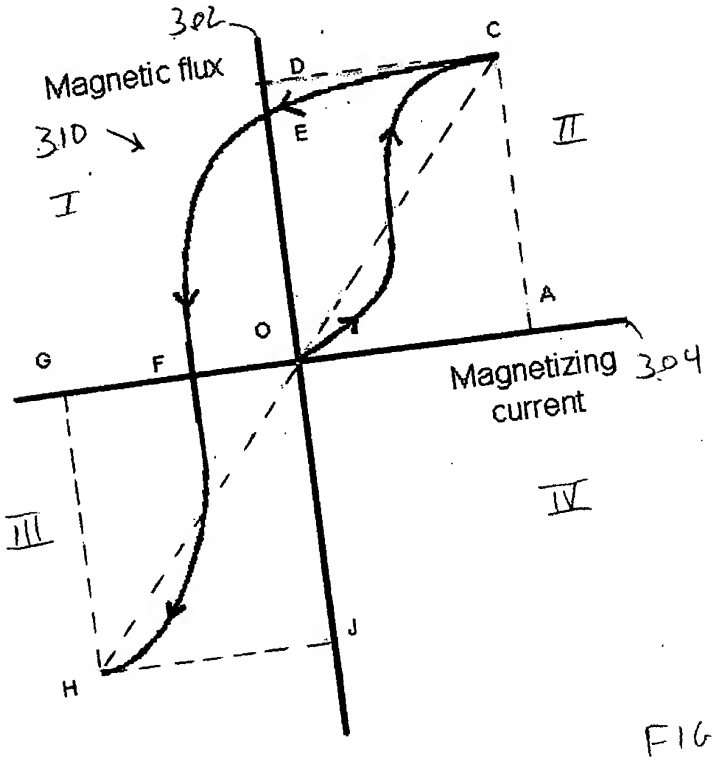


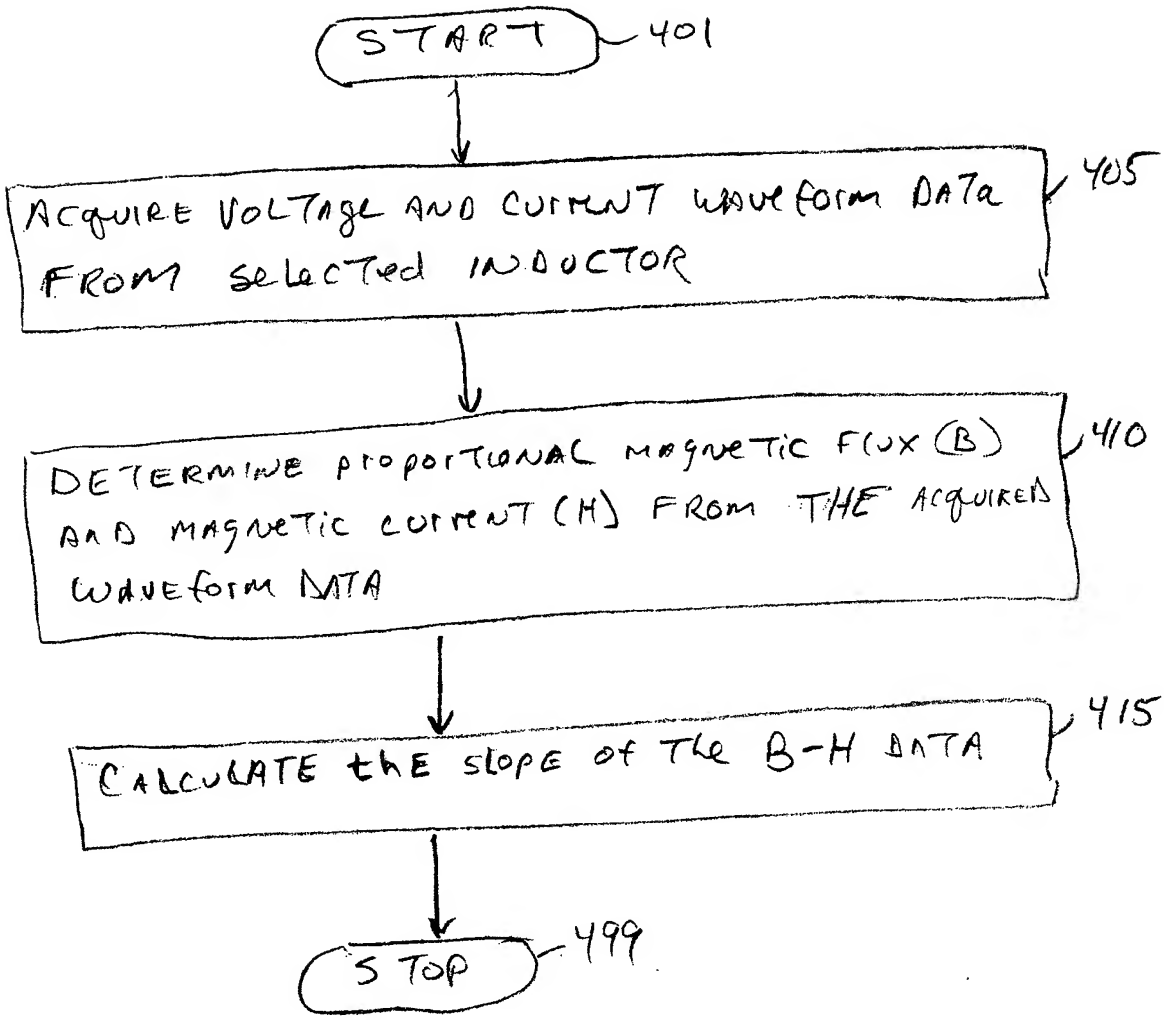
FIG. 2

200



300

FIG. 3


START
401
ACQUIRE VOLTAGE AND CURRENT WAVEFORM DATA FROM SELECTED INDUCTOR
405
DETERMINE PROPORTIONAL MAGNETIC FLUX (B) AND MAGNETIC CURRENT (H) FROM THE ACQUIRED WAVEFORM DATA
410
CALCULATE THE SLOPE OF THE B-H DATA
415
STOP
499

400

FIG. 4

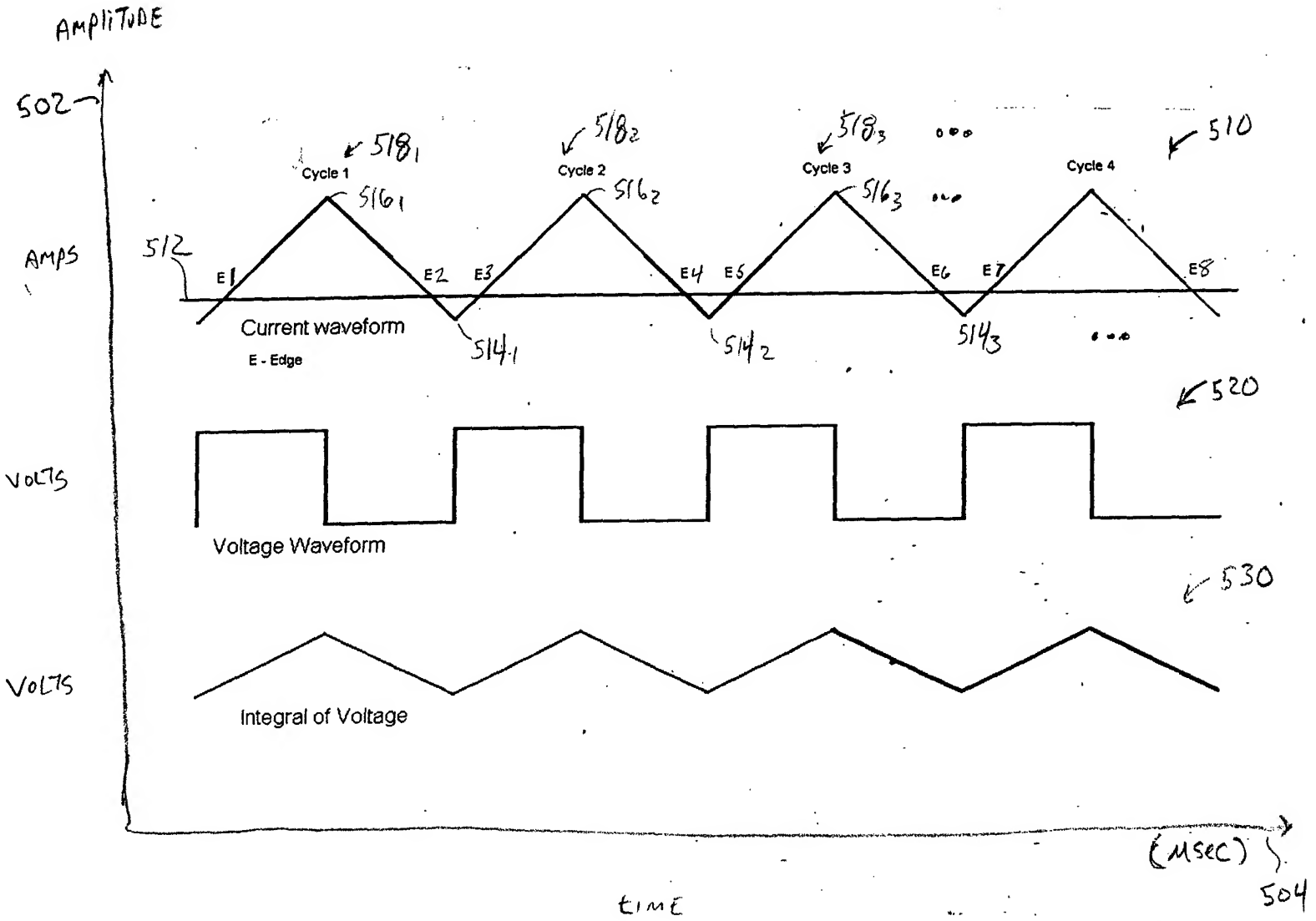

AMPLITUDE
502
AMPS
VOLTS
VOLTS
TIME
(MSEC)
504
510
512
518₁
518₂
518₃
516₁
516₂
516₃
Cycle 1
Cycle 2
Cycle 3
Cycle 4
E1
E2
E3
E4
E5
E6
E7
E8
514₁
514₂
514₃
Current waveform
E - Edge
520
Voltage Waveform
530
Integral of Voltage

FIG. 5

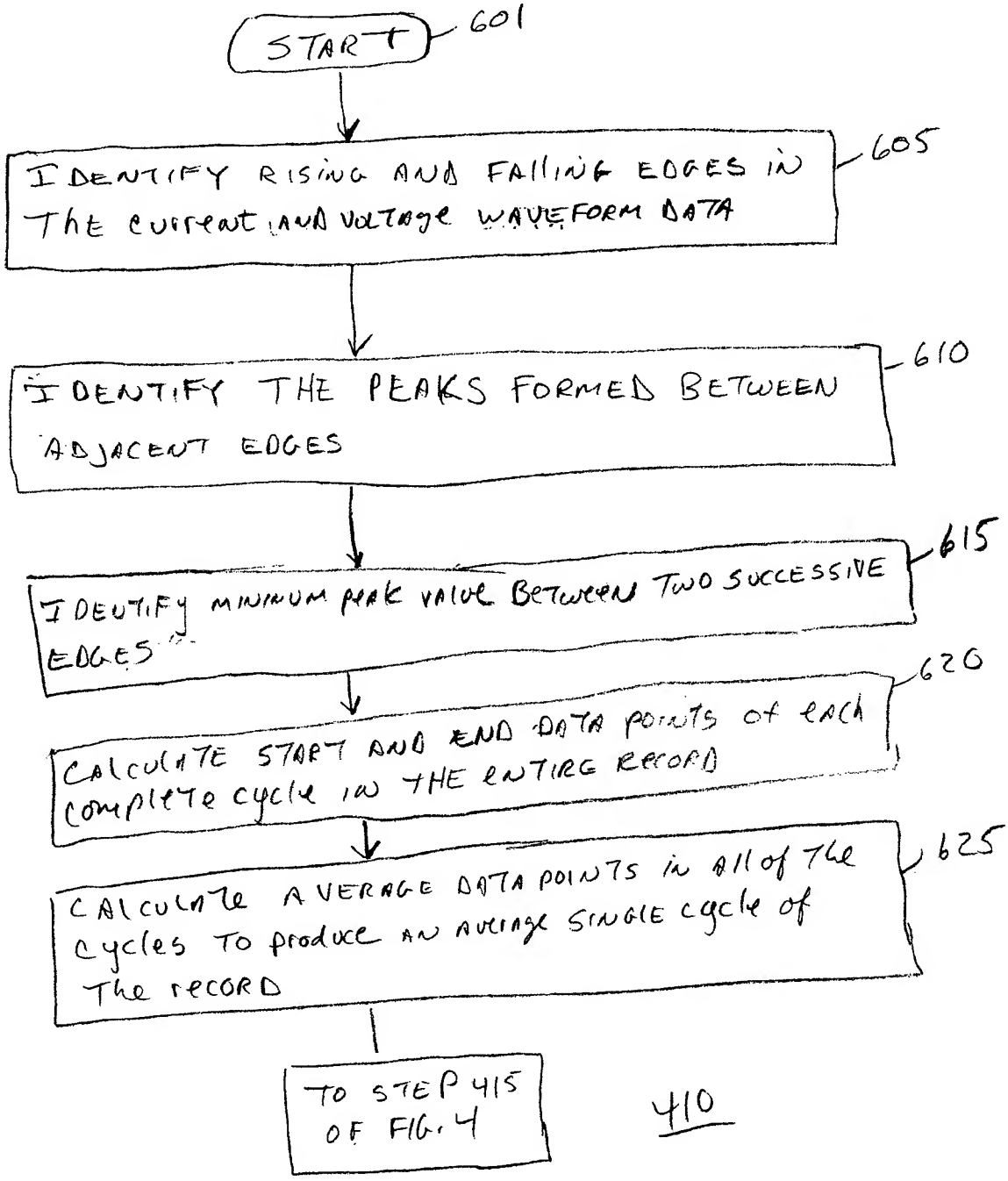

START
601
IDENTIFY RISING AND FALLING EDGES IN THE CURRENT AND VOLTAGE WAVEFORM DATA
605
IDENTIFY THE PEAKS FORMED BETWEEN ADJACENT EDGES
610
IDENTIFY MINIMUM PEAK VALUE BETWEEN TWO SUCCESSIVE EDGES
615
CALCULATE START AND END DATA POINTS OF EACH COMPLETE CYCLE IN THE ENTIRE RECORD
620
CALCULATE AVERAGE DATA POINTS IN ALL OF THE CYCLES TO PRODUCE AN AVERAGE SINGLE CYCLE OF THE RECORD
625
TO STEP 415 OF FIG. 4
410

FIG. 6

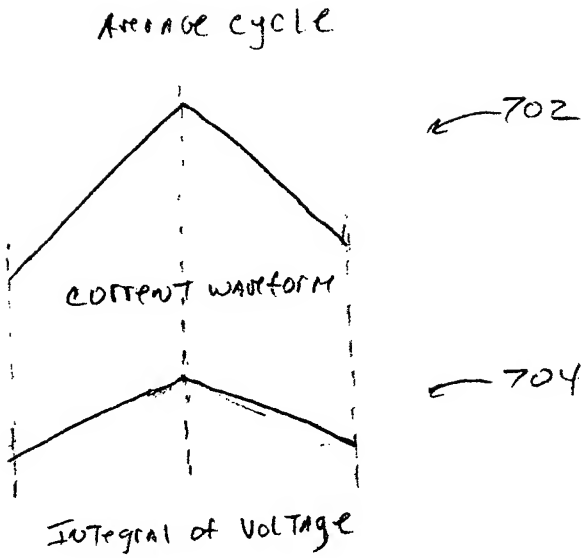

Average cycle
702
CURRENT WAVEFORM
704
Integral of Voltage

FIG. 7